

VAA-Weekly-Progress

10/23-10/29

Agenda

- Results of RTMPose trained on Bovidae-family and Bovidae+Cervidae family subsets
- Annotations of antelope images on Label Studio
- Present work done on similar pose extraction

Goals

Everyone - Label images

- Around 10 for half an hour of labeling

Medha - Keypoints

- Root of tail (add picture)
- Paw (front facing picture)
- Training Bovidae + Cervidae (no antelopes) and test on 100 antelope images (may finetune with other 100 later)

Shaan

- Training Bovidae (no antelopes) and test on 100 antelope images (may finetune with other 100 later)

Josh

- Upload images and assign on labelStudio

Parth - Similarity of Species

- Write a program to separate images based on side profile & more

Training: - within next two weeks - remove all antelopes from training datasets

Ap10k, Bovidae, Bovidae + Cervidae, maybe Antelope without validation

Bovidae + Cervidae Training

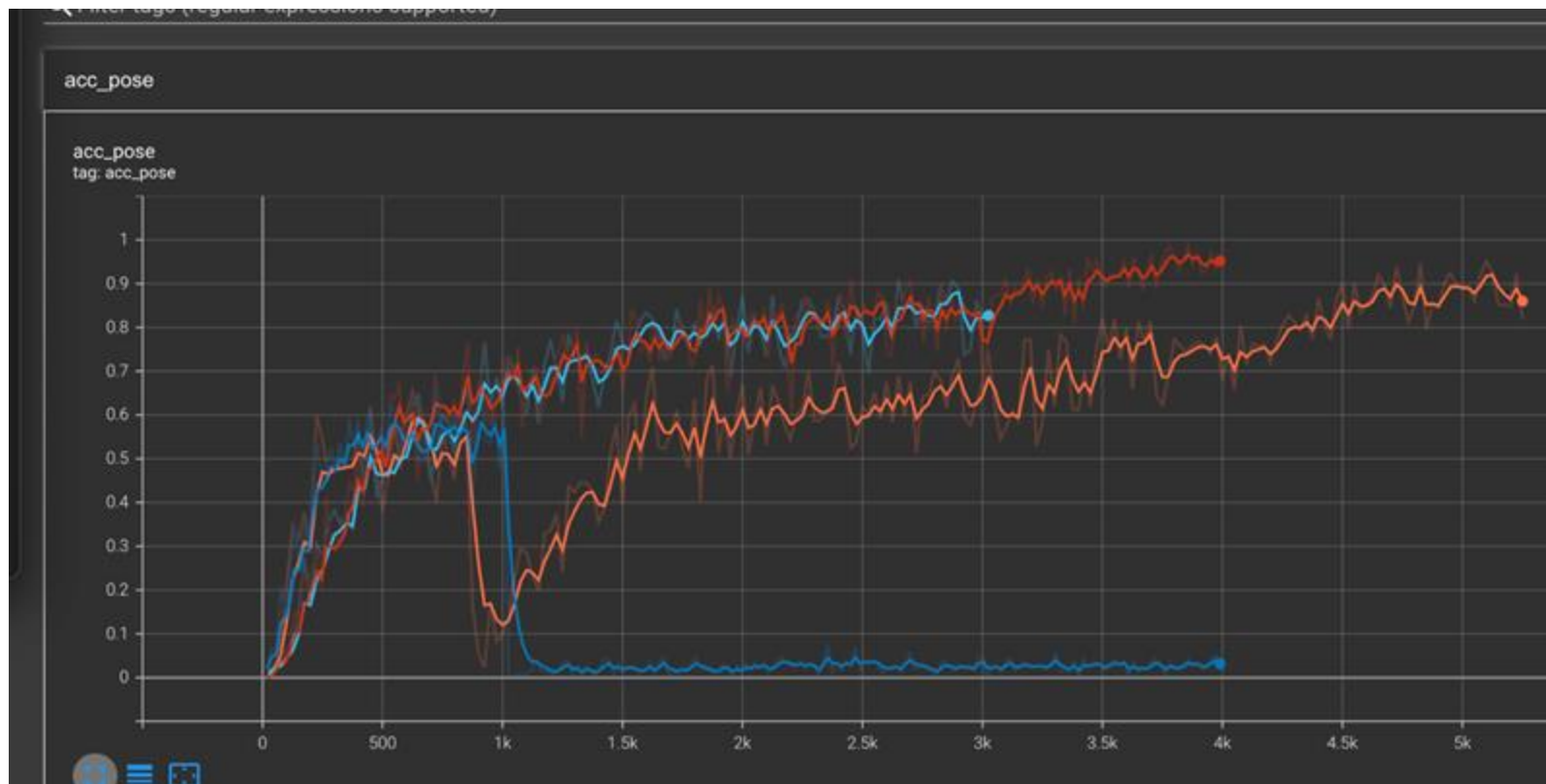
Bovidae

Species	Training	Validation
argali sheep	55	7
bison	140	20
buffalo	140	20
cow	140	20
sheep	140	20

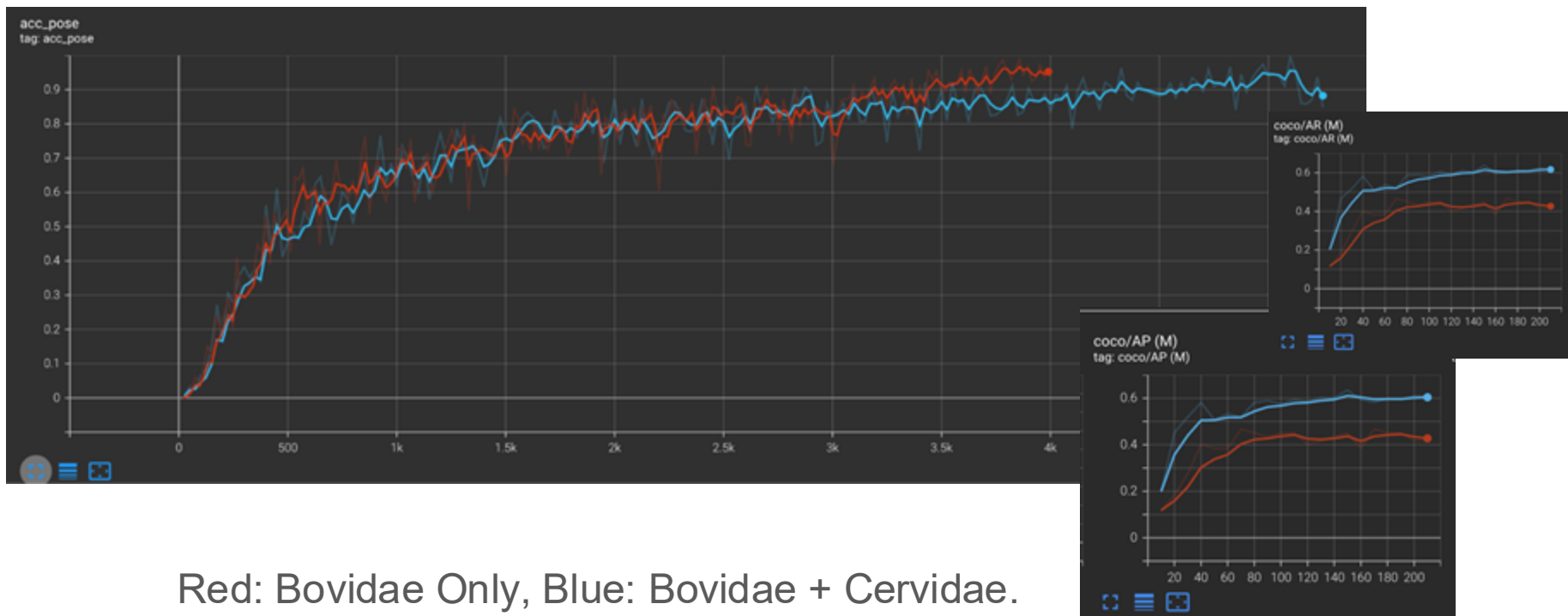
Testing both models on antelopes
(100 images)

Bovidae + Cervidae

Species	Training	Validation
argali sheep	55	7
bison	140	20
buffalo	140	20
cow	140	20
sheep	140	20
moose	140	20
deer	140	20



Bovidae + Cervidae Results



Red: Bovidae Only, Blue: Bovidae + Cervidae.
Still need to evaluate on Antelope test set

Similar pose extraction to evaluate species similarity

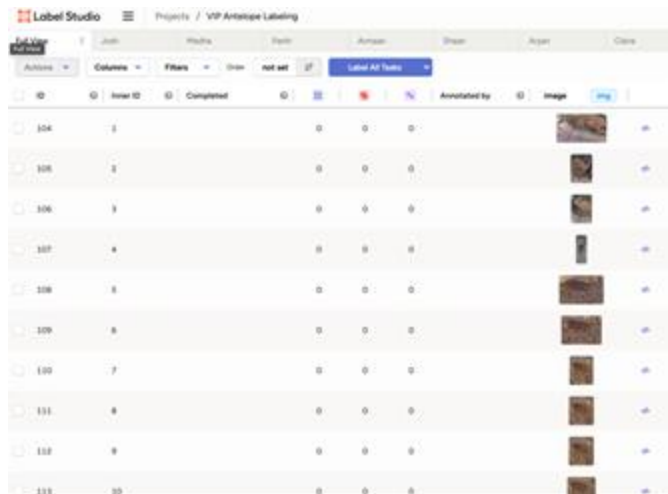
- Created script to separate images based on a singular pose
 - Helps with species comparison
- Results can be organized by species type for direct comparison with antelopes
- Extracts based on location of nose/eyes vs root of tail/hip keypoints
 - Needs some fine tuning/more constraints for different poses



Images from AP-10k based on filtering

Annotating Images on Label Studio

- Created “VAA Antelope Labeling” project in Label Studio
 - Contains ~900 images of antelopes categorized by VAA team earlier in the semester
 - Each labeler has their own tab where the images assigned to them for the week appear
 - Labelers are assigned images semi-randomly (“Antelope Annotation Order” Document)



The screenshot shows the Label Studio web interface. At the top, there's a navigation bar with 'Label Studio' and 'Projects / VAA Antelope Labeling'. Below this is a toolbar with buttons for 'Add Image', 'Columns', 'Filters', 'Draw', 'not set', 'Label All Images', and 'Image'. The main area displays a table of images for annotation. The table has columns for 'ID', 'Image ID', 'Completed', 'Annotated by', and 'Image'. The 'Image' column shows small thumbnail images of antelopes. The 'Completed' column has checkboxes. The 'Annotated by' column has a dropdown menu. The 'Image ID' column shows numerical values.

ID	Image ID	Completed	Annotated by	Image
<input type="checkbox"/>	104	1	0 0 0	
<input type="checkbox"/>	105	1	0 0 0	
<input type="checkbox"/>	106	3	0 0 0	
<input type="checkbox"/>	107	4	0 0 0	
<input type="checkbox"/>	108	5	0 0 0	
<input type="checkbox"/>	109	6	0 0 0	
<input type="checkbox"/>	110	7	0 0 0	
<input type="checkbox"/>	111	8	0 0 0	
<input type="checkbox"/>	112	9	0 0 0	
<input type="checkbox"/>	113	10	0 0 0	

Next Steps

- Training the full AP10k dataset with no antelopes on RTMPose
- Continue exploring method used for species similarity (ratios, limb lengths etc).
 - Decide framework of steps needed to execute the method
- Annotating images

Personal Progress

Medha

- Updated keypoint definitions based on feedback from last week
- Trained RTMPose on bovidae+cervidae subset of AP10K
 - Extracted dataset for only bovidae+cervidae without antelopes
 - Trained with original hyperparameters and tested on set aside antelope data
- Created new script to randomly split antelope dataset into two subsets (one for testing to be used for all future training and one for fine tuning, which we will implement in the future)

Josh

- Created a new project in label studio
 - Imported all of the detected antelopes from earlier in the semester into the label studio project.
 - Configured the labeling instructions and keypoint labels/the label interface for the project.
 - Developed system to have each person label a wide set of different images in the set of total images.
 - Configured the label manager tabs to correctly filter the images for each person, corresponding to which images they are assigned.

Parth

- Created Script for parsing through AP10k images by keypoint labels within images
 - Requires root of tail or hip to be left and nose/eyes to be to the right of the image.
 - Cleanly outputs to folders by species if desired
 - Correctly gets images where animals are sideways